UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

Ref: 8MO

March 13, 2000

Mr. John F. Shireman, Superintendent
Wastewater Project
Glacier National Park
West Glacier, Montana 59936

Re: Lake McDonald Park Headquarters
Wastewater Treatment System Rehabilitation
Draft Environmental Impact Statement

Dear Mr. Shireman:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Environmental Protection Agency (EPA), Region VIII, Montana Office has reviewed the above-referenced Draft Environmental Impact Statement (DEIS).

The EPA supports Glacier National Park's selection of Alternative 3 as the preferred alternative to upgrade wastewater treatment facilities at Lake McDonald Park Headquarters. This alternative would replace the existing lagoon-spray irrigation wastewater treatment system with a sequencing batch reactor treatment system. This alternative achieves the highest level of pollutant removal, disturbs less ground, avoids use of the existing spray irrigation field in the 100 year floodplain, and has the highest non-monetary evaluation rating.

Of the discharge options associated with Alternative 3, it appears to EPA that the constructed wetland may have the most benefits. The constructed wetland would potentially create wetland habitat in association with polishing treatment to improve effluent quality prior to discharge to the Middle Fork Flathead River, although the effluent limitations such a discharge would have to meet are not clearly described in the DEIS.

A permit from the Montana Department of Environmental Quality (MDEQ) will be required to construct, modify or operate a disposal system or to construct or use any outlet for discharge of sewage, industrial or other wastes into Montana surface or ground water. The MDEQ's permit requirements (effluent limitations) for discharges to surface waters or ground waters for the alternative discharge locations should be more clearly identified or discussed in the EIS so that readers may better

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understand and evaluate treatment requirements.

It would also be helpful if treatment system schematic diagrams were provided for each treatment alternative (particularly for the preferred alternative) to clearly identify all the treatment units, flow volumes, waste streams, chemical addition streams, sludge disposal, and discharge locations for the various treatment processes.

We also ask why chemical addition is included in Alternative 3 for nitrogen and phosphorus removal? The sequencing batch reactor (SBR) treatment system included in Alternative 3 is capable of biological nutrient removal, without the need for chemical addition (or additional treatment components). It has been documented that sequencing batch reactor (SBR) facilities (less than 5 MGD) are able to nitrify, denitrify, and remove phosphorous. An SBR process has been able to provide treated effluent with a phosphorus level of less than 1 mg/l, which is consistent with interim phosphorous limits, as described in the DEIS (page 27). We suggest that biological nutrient removal be compared with chemical addition for nutrient removal and this comparison disclosed in the FEIS.

Finally we note that each of the four action alternatives will have a design capacity of 250,000 gpd which is similar to the design capacity of the existing operation. It is implied during discussion of the No Action Alternative (DEIS top of page 44) that an increasing amount of effluent is expected in the future, and it is suggested (DEIS page 44) that abandonment of existing septic systems on private residences in the Park near Lake McDonald and connections of sewer lines to the treatment system may occur in the future. We ask if construction of new improved wastewater treatment facilities without additional capacity will be adequate for the 20 year design life of the facilities (i.e., Is no increase expected in Park wastewater flows or pollutant loading over the 20 year design life)?

Our more detailed comments, questions, and concerns regarding the analysis, documentation, or potential environmental impacts of the Lake McDonald Park Headquarters Wastewater Treatment System Rehabilitation DEIS are enclosed for your review and consideration as you complete the final environmental document.

Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the Lake McDonald Park Headquarters Wastewater Treatment System Rehabilitation DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). A copy of EPA's rating criteria is attached.

As can be seen from the enclosed comments, while we support the preferred alternative, we believe additional information should be provided regarding the proposed treatment processes and facilities (i.e., treatment units, flow volumes, waste streams, chemical addition streams, sludge disposal, etc.,). We also believe that the effluent limitations which the treatment facilities are designed to meet for the various discharge locations should be more fully described, and the overall treatment system capacity should be evaluated in light of potential future growth and connections to the wastewater collection system. This additional information is needed to fully assess and mitigate all potential environmental impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 441-1140 ext. 232.

Sincerely,

Original Signed by Robert L. Fox
for John F.Wardell

John F. Wardell
Director
Montana Office

Enclosures

cc: Cynthia Cody/Yolanda Martinez, EPA 8EPR-EP, Denver
Sam Martinez, MDEQ, Helena
Brian Friel, EPA, 8P2-W-MS, EPA, Denver

EPA Comments on the Lake McDonald Park Headquarters Wastewater Treatment System Rehabilitation Draft Environmental Impact Statement

BRIEF PROJECT OVERVIEW:

Glacier National Park has prepared a draft EIS to address rehabilitation of the wastewater treatment system that serves the west side of Glacier National Park (Park). The existing wastewater treatment plant (WWTP) was built in 1973 and includes a sewage treatment lagoon and irrigation spray field located in the 100 year floodplain of McDonald Creek. The service areas for the WWTP includes Park headquarters and residences, campgrounds, Lake McDonald Lodge, and concession businesses and employee housing. The existing WWTP is not adequate to meet the current demand and lacks capacity and flexibility to maintain and operate in an efficient manner. The lagoon lacks capacity to store winter flows and precipitation during wet years. Snow cover or a high water table has on occasion prevented early spring applications of treated lagoon effluent to the spray field, resulting in a breaching of a lagoon dike and release of inadequately treated wastewater to the environment. In addition the existing spray field is not operating efficiently and requires rehabilitation.

Four action alternatives and no action were evaluated in the DEIS. The action alternatives would have a design capacity of 250,000 gpd which is similar to the original design capacity of the existing operation. Alternative 1A would use the existing WWTP in its current layout and discharge configuration, and incorporate the addition of an additional three acre 4.3 million gallon capacity aerated treatment lagoon east of the existing WWTP, and an additional 13 acre spray irrigation area located north of the existing plant site. The existing spray irrigation field would be rehabilitated with new spray heads for existing irrigation system. The new lagoon would serve as additional storage for early season flows when discharge to the existing spray irrigation field is not possible due to saturated ground conditions. This alternative would also include replacement of the existing lagoon liner, construction of a new headworks, and upgrading the existing blower and pumping systems. Alternative 1A would cost $2.15 million and have operating costs of $161,700 per year and 1.5 staff operators.

Alternative 1B would use the existing lagoon and spray field in the 100 year floodplain for the discharge of wastewater effluent. Three additional storage and aerated lagoons would be constructed. Two new 5 million gallon capacity seasonal storage lagoons would be constructed west and north of the existing plant site. In addition a new 4.3 million gallon aerated lagoon would be located east of the existing plant. The new lagoons would require 9 acres of land, and would increase storage capacity to capture high inflows during the summer months. This alternative would also include replacement of the existing lagoon liner, new spray heads for existing irrigation system, construction of a new headworks, and upgrading the existing blower and pumping systems. Alternative 1A would cost $2.06 million and have operating costs of $155,400 per year and 1.5 staff operators.

Alternative 2 would involve construction of an enclosed activated sludge treatment plant using two sequencing batch reactor (SBR) tanks to remove nitrogen. In addition UV disinfection would be used to kill pathogens prior to discharge. Effluent from the treatment process would be discharged to two 1.4 acre and one 1.5 acre rapid infiltration basins located north of the existing plant where wastewater would percolate through subsurface soils to ground water. Three infiltration basins are needed to provide adequate rest periods between applications to each basin. The existing lagoon would be used as waste holding and equalization ponds to hold waste sludge from the SBR process. Waste sludge accumulating at the bottom of the ponds would be removed using a floating sludge dredge and hauled out of the Park to be disposed of at an approved landfill. The existing spray field would no longer be used. This alternative would also include replacement of the existing lagoon liner, construction of a new headworks, and upgrading the existing blower and pumping systems. Construction of the advanced WWTP and rapid infiltration basins in Alternative 2 would cost $3.0 million and have operating costs of $207,900 and two full time operators.

Alternative 3 would utilize the SBR treatment technology for nitrogen removal discussed under Alternative 2, and would also incorporate chemical additions and filtration for nitrogen and phosphorus removal. In addition UV disinfection would be used to kill pathogens prior to discharge. This alternative would also include replacement of the existing lagoon liner, construction of a new headworks, and upgrading the existing blower and pumping systems. Several discharge options are considered. These include: a percolation stream/pond at the site of the existing spray field with subsurface discharge to McDonald Creek; a two acre constructed wetland located on the Middle Fork Flathead River floodplain south of the intersection of the WWTP access road and Quarter Circle Bridge Road with potential surface overland flow and subsurface discharge to the Middle Fork Flathead River; a buried exfiltration gallery above the 10 year floodplain of the Middle Fork Flathead River; a new pumping system to deliver effluent to the existing spray field. In addition a surface water discharge to the Middle Fork of the Flathead River is a secondary option. This would require a 3,500 foot long buried pipeline following existing roads to convey effluent to the River at a discharge point south of the Quarter Circle Bridge Road. Construction of Alternative 3 would cost $3.7 million and have operating costs of $223,000 and two full time operators. Additional cost for construction of a treated effluent discharge site is dependent upon location (percolation stream/pond in existing spray field =$25,000; constructed wetland = $35,000; exfiltration gallery = $50,000; and spray irrigation = $350,000). Alternative 3 is the preferred alternative.

No Action would continue operation of the existing sewage treatment lagoon and irrigation spray field. Failure to improve the existing WWTP, however, may result in surface and ground water contamination, harm to aquatic and other natural resources, and restrictions in operations and concessions at the Park during winter and early spring.

COMMENTS:

1. The EPA supports Glacier National Park's selection of Alternative 3 as the preferred alternative. This alternative achieves the highest level of pollutant removal, disturbs less ground, avoids use of the existing spray irrigation field in the 100 year floodplain, and has the highest non-monetary evaluation rating. Of the discharge options associated with Alternative 3 the constructed wetland appeared most beneficial. The constructed wetland would potentially create wetland habitat in association with polishing treatment to improve effluent quality prior to discharge to the Middle Fork Flathead River, although the effluent limitations such a discharge would have to meet are unclear.

   We are enclosing a draft document produced by an Interagency Workgroup on Constructed Wetlands ("Guiding Principles for Constructed Treatment Wetlands: Providing Water Quality and Wildlife Habitat") to provide guidance on siting, design, construction, operation, maintenance, and monitoring of constructed treatment wetlands, although the effluent limitations such a discharge would have to meet are not clearly described in the DEIS.

2. A permit from the Montana Department of Environmental Quality (MDEQ) is required to construct, modify or operate a disposal system or to construct or use any outlet for discharge of sewage, industrial or other wastes into Montana surface or ground water. The MDEQ's permit requirements (effluent limitations) for discharges to surface waters or ground waters should be identified or discussed in the EIS so that readers may understand and evaluate treatment requirements.

   Nutrient (nitrogen and phosphorus) and ammonia limitations for discharges are of particular interest. Understanding of effluent limitations is needed to better evaluate effectiveness of alternative treatment schemes and discharge locations in meeting treatment requirements. For example, a direct surface discharge or a exfiltration gallery or constructed wetland discharge to the Middle Fork Flathead River are among the options presented for Alternative 3. Effluent limitations for such a surface discharge should be identified to allow evaluation of the discharge option for Alternative 3.

   Also, Alternatives 1A and 1B would result in increased discharges of nutrients to hydrologically connected ground waters when compared to Alternatives 2 and 3. Appropriate alternative evaluation cannot take place without understanding of the effluent limitations and treatment requirements for the various discharge locations.

   It is our understanding Glacier National Park waters are designated "Outstanding Natural Resource Waters" under Montana Water Quality Standards. Such designation may require wastewater discharges in the Park to meet restrictive Nondegradation Requirements. We

suggest that you contact Sam Martinez at MDEQ at 444-0917 regarding MDEQ discharge requirements.

3. It would be helpful if treatment system schematic diagrams were provided for each treatment alternative (particularly for the preferred alternative) to clearly identify all the treatment units and flow volume and waste streams and chemical addition streams and discharge locations for the various treatment processes. Enclosed is an example of such a schematic diagram for a wastewater handling system at a proposed mine.

4. The sequencing batch reactor (SBR) treatment system included in Alternative 3 is capable of biological nutrient removal, without the need for chemical addition (or additional treatment components). It has been documented that SBR facilities (less than 5 MGD) are able to nitrify, denitrify, and remove phosphorous. An SBR process has been able to provide treated effluent with the P level of less than 1 mg/l, which is consistent with interim phosphorous limits, as described in the DEIS (page 27). Why is chemical addition needed for nutrient removal in Alternative 3? We suggest that biological nutrient removal be compared with chemical addition and this comparison disclosed in the FEIS.

   Larger reactors (or tanks) would be required if biological phosphorous removal were used. The additional cost of the larger tanks may be cost-effective when compared to the cost of chemical addition. This comparison would seem appropriate in this situation. (NOTE: This comparison might not be possible until the design phase.)

   The chemical additions to be used in Alternative 3 should also be identified and discussed further so that impacts of chemical usage and of chemical sludges can be better assessed. It is also recommended that the EIS include design parameters for its SBR alternative as much as possible, including number and capacity of tanks and cycle times, in addition to conventional activated sludge considerations, such as hydraulic retention time, solids retention time, mixed liquor suspended solids concentration, influent wastewater characteristics, as well as effluent requirements.

5. Where will the "approved landfill" (page 15) suggested as the ultimate disposal site for sludge from Alternative 2, and presumably Alternative 3, be located? We believe the likely location of this landfill should be identified during the NEPA evaluation to assure that impacts from sludge disposal are fully evaluated. What are the anticipated volumes and moisture content of the sludge that may have to be trucked to the "approved landfill?" Will this sludge be dried or concentrated prior to trucking? If so, how will sludge be dried or concentrated, and where will drying or concentrating facilities be located? Removal and disposal of biosolids is governed by EPA regulations published in 40 CFR Part 503. If you have questions regarding these requirements please contact Ms. Gwen Jacobs of EPA's Helena, Montana Office at 441-1140 ext. 235.

6. It is stated (page 10) that each of the four action alternatives will have a design capacity of 250,000 gpd which is similar to the design capacity of the existing operation. We note that it is implied during discussion of the No Action alternative (top of page 44) that an increasing amount of effluent is expected in the future. It is also suggested (page 44) that abandonment of existing septic systems on private residences in the Park near Lake McDonald and future connections of sewer lines may occur. Will construction of new improved wastewater treatment facilities without additional capacity be adequate for the 20 year design life of the facilities (i.e., Is no increase expected in Park wastewater flows or pollutant loading over the 20 year design life)?

7. Is septage loading from septic tank pumping factored into the pollutant loading that the treatment system will be designed for? What are the anticipated present and future septage loads of the treatment system?

8. It would appear that Alternative 1B that provides additional lagoon treatment and storage capacity, but does not provide additional spray irrigation capacity would continue to experience operational problems due to inadequate irrigation capacity (i.e., irrigation capacity limited by saturated ground in the spring).

9. It is stated (pages 26 and 27) that floodplain soils in the project area have high concentrations of coarse fragments with high permeability and low nutrient holding capacity. Will these soils provide adequate nutrient removal for the alternatives that utilize wastewater movement through soil as part of the treatment/disposal scheme (i.e., percolation pond and irrigation alternatives)? What are the agronomic application rates for the land application alternatives? Agronomic application rates should be tracked. It is our understanding that this is not currently being done.

10. Is grazing of pack horses and mules currently taking place on spray irrigation fields? Glacier National Park should restrict grazing on fields receiving wastewater application.

11. It is noted (page 30) that the aquifer associated with the Middle Fork of the Flathead River (and we presume McDonald Creek) supports a community of subaquatic invertebrates referred to as the hyporheic community, and that studies on the Flathead River indicate the hyporheic community is very sensitive to sewage effluent. What effect will the various treatment alternatives with varying levels of pollutant removal (particularly nutrient removal) and different discharge locations have on the hyporheic communities? It would appear that the No Action Alternative and Alternatives 1A and 1B would result in greater adverse impacts to the hyporheic community, and that Alternative 3 would result in the least impact (due to greater nutrient removal prior to discharge to ground water).

12. It is stated (page 41, 42) that a periodic sampling program would be used in Alternatives 1A and 1B to monitor ground water below the spray fields to ensure that state water quality standards are met. Is any ambient monitoring proposed in association with Alternatives 2 and 3

to ensure compliance with state water quality standards? We believe the proposed monitoring programs should be identified or appended to the EIS (i.e., location of monitoring stations, frequency of sampling, parameters to be analyzed, etc.,). Glacier National Park should contact the MDEQ (Sam Martinez at 444-0917) to determine aquatic monitoring requirements.